

REVISIONAL NOTES ON AUSTRALIAN THEREVIDAE.

By JOHN S. MANN.

Part 2.

Introduction.

In the first paper of this series*, Group 1 of the family, with the exception of two genera (*Psilocephala* and *Belonalys*), was completely revised. It has not been possible in these pages to fully revise Group 2, but the important and larger genera have been considered, and the others will be, in a subsequent paper. It must be stressed that these are "Revisional Notes" only, and, as was pointed out previously, insufficient material is available to allow of a complete revision of the family.

As a result of acquiring much additional material, it has been found that many characters used by previous authors for the establishment of their generic conceptions are not of sufficient importance to clearly separate many of such genera. These examples are noted in the discussion on the various generic divisions.

In these notes five genera are dealt with, twelve species are described as new and ten of the old descriptions are revised.

Key to the Genera of Group 2.

1. Scutellum triangular and perpendicularly raised, all small species.
 *Acraspisa* Krober.
2. Scutellum normally semicircular. 2.
2. Antennae slightly or greatly longer than the head. 3.
- Antennae shorter than the head. 4.
3. Palpi one segmented, attenuated, labella of proboscis reduced; males with part of the abdomen silvery pollinose and considerably flattened above and below in both sexes; antennae slightly longer than the head; style two-segmented; head more or less pyriform; face protruding. *Acupalpa* Krober.
- Palpi two-segmented; labella not reduced; abdomen of males in no wise pollinose; cylindrical in both sexes; antennae considerably longer than the head; style one-segmented; head subhemispherical.
 *Agapophytus* Guerin.
4. Small species with enlarged hypopygium and silvery pollinose abdomen in the males; eyes with a transverse furrow; wings banded; elongated hind legs with the femora flattened on the sides and bearing a row of bristles. *Acatopygia* Krober.
- Moderate to large species with abdomen and hypopygium of males not as above; eyes normal; wings not banded, at most clouded only.
 *Lonchorhynchus* White.

Note: Determinations of genera should be checked by the descriptions as there are possibly new genera in collections which have not been made available to me. Three genera of the group are not included in the above

* *Aust. Zool.*, v., 1928, 151.

key as they have not been correctly determined; of these, *Pseudoloxocera*, is not considered valid (vide notes under the description of *A. obscuripes*), *Spatulipalpa* has not been recognised, and, if my determination of *Parapsilocephala* is correct, it can be distinguished from the two lastnamed genera as follows: From *Actopygia* by the uniformly cylindrical abdomen, and from *Lonchorhynchus* by its small size and by having the eyes touching in the males.

Oldenbergia is possibly a synonym of *Parapsilocephala*.

Genus ACRASPISA.

Acraspisa Krober, Ent. Mitt., 1, p. 286, 1912.

Small species with the head distinctly pyriform and flattened above; slightly broader than long and about as broad as the thorax; occiput deeply concave (except in *trifasciata*) and fringed with black bristles; eyes bare, very large and descending well down on to the cheeks and divided by an indistinct transverse furrow which is level with the antennae, touching in the males for a short distance and separated in the females; ocellar tubercle oval, slightly raised and bearing tufts of short hair; ocelli three in number; front small and triangular in the males and uniformly broadening in the females; antennae shorter than the head and in relation to the anterior margin of the eyes they are inserted at something below two-thirds its depth and they project forward so that they and the flattened frons are on one plane, composed of three segments, the basal one of which is short, stout and cylindrical and never more than twice as long as the second which is more or less globular and flattened at the extremities, segment three is irregularly conical and may be slightly broader than the other segments when viewed in profile; style two segmented the apical segment being very small and often retracted into the basal and is thus often difficult to discern; the arista is never longer than the style; face and cheeks very small, the latter bearing long fine hair; proboscis projecting forwards somewhat; palpi composed of one broadly conical segment which is short haired.

The thorax is slightly longer than and as deep as broad, one and one half times as long as the head, very convex above and almost bare of pubescence, but bearing a few bristles (slightly tomentose with a few hairs in *trifasciata*); the scutellum is triangular and raised to become perpendicular and is fully twice as long as its greatest width, it bears two ventral marginal bristles; postscutellum convex and well hidden beneath the scutellum.

The abdomen may be more than twice as long as but is slightly narrower than the thorax, flattened above and below and somewhat clavate at the extremity.

The legs are normal in length, the tibiae and tarsi bear numerous bristles, but the femora are devoid of such.

Wings banded; M3 and M4, similarly with Cu1 and 1A coalesce well before the wing border, the origination of M1 and M2 is subject to considerable variation (vide notes under the description of *obscuripes*); costa and hind margin ciliated.

The sexes may be dissimilar in general coloration, but individually, except for the veins M1 and M2, the specimens of any species show little or no variation.

Genotype: *Acraspisa trifasciata* Krober. In the Hamburg Museum.

Krober erected the genus on one male from Peak Downs (Northern Territory).

Range: Australia only.

Distribution: The typical species extends from New South Wales to the Northern Territory; the other two are known from Queensland only.

The primary character given by Krober when he proposed this genus was that of the perpendicularly raised and triangular scutellum. This character alone would not be of sufficient importance to establish the genus for it has been used with disastrous results in STRATIOMYIIDAE. *Pachygaster* has been split up into an enormous number of genera, several of which have been based on this very character and there is nothing to indicate that these conceptions are more than arbitrary. The genus *Lecomyia* contains species in which the scutellum is both upraised and normal, and in such cases there is no dispute about these species being congeneric. With this in mind one cannot help viewing the character in THEREVIDAE with some doubt, but in the case of this genus there are several quite good supporting characters and the group as herein described is very homogeneous.

Key to the species of Acraspisa Krober.

- | | |
|---|----------------------------|
| 1. Males. | 2. |
| Females. | 4. |
| 2. Thorax bright brown with a shining black anterior dorsal area. | <i>nigrinota</i> sp. nov. |
| Thorax shining or dull black. | 3. |
| 3. Thorax grey tomentose; scutellum brown and legs mainly brown. | <i>trifasciata</i> Krober. |
| Thorax without grey tomentum, shining black; scutellum shining black; legs black brown. | <i>obscuripes</i> sp. nov. |
| 4. Thorax dull black above. | <i>trifasciata</i> Krober. |
| Thorax red-brown; legs mainly black. | <i>obscuripes</i> sp. nov. |
| Thorax bright brown; legs bright yellow-brown. | <i>nigrinota</i> sp. nov. |

In the material before me I have two females of another new species, which are closely allied to *obscuripes*, and three of yet another species which are apparently nearly related to *trifasciata*. I am refraining from describing these until more are available, and since the males may be somewhat diverse in general coloration, it would certainly be better to have these for description at the same time.

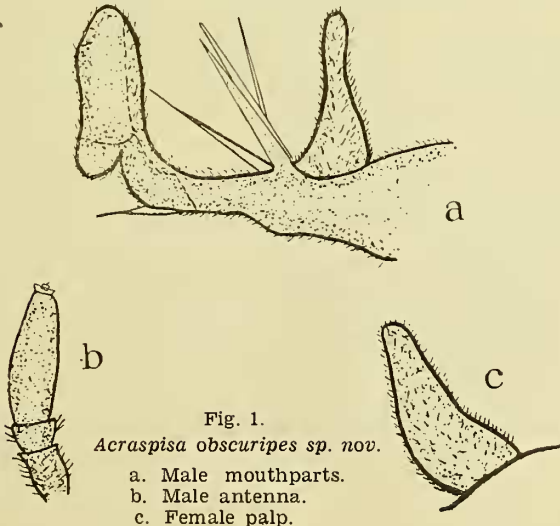


Fig. 1.

Acraspisa obscuripes sp. nov.

- a. Male mouthparts.
 b. Male antenna.
 c. Female palp.

ACRASPISA TRIFASCIATA.

Acraspisa trifasciata Krober, Ent. Mitt., 1, p. 286, 1912.

Length: 6-8 mm.

Male: Head with the occiput dull black, more or less straight but slightly indented medianly, sparsely fringed with black bristles; eyes separated on the vertex by the width of the ocellar tubercle, but contiguous for two-thirds the distance below this towards the antennae and from thence they somewhat sinuously diverge; ocelli brown; front black, grey tomentose; antennae dull brown with black reflections, segment 1 less than twice as long as 2; 3 slightly more than three times as long as 1 and twice as long as 1 and 2 united; the style is almost one-fourth the length of the first antennal segment; the arista is two-thirds the length of the style; face and cheeks black-brown, the latter bearing black hair; proboscis and palpi black with black hairs, and the former projects as far forward as the apex of the second antennal segment, and the latter is two-thirds the length of the former.

Thorax dull black, covered with grey tomentum and fine black hair; furnished with 3 pre-alar, 1 inter-alar and 2 post-alar bristles; pleurae black, grey tomentose; scutellum brown; postscutellum black.

Abdomen two and one half times as long as the thorax, straight sided; brown with black reflections; segments 4-5 almost wholly black; venter similarly coloured; genitalia bright brown.

Legs brown, hind tibiae and tarsi mainly black.

Wings hyaline, banded with three irregular grey cross bands, one crossing the basal cells, one the median and one just prior to the tip; the extreme tip is grey; veins M1 and M2 arise together from the corner of the median cell which is considerably broader, but hardly as long as cell M3.

The female differs from the male, in having the eyes separated on the vertex by twice the width of the ocellar tubercle and the anterior margins straight and uniformly diverging, the thorax with reddish pleurae and the abdomen almost wholly black and darker banded wings. The genital spines are reddish.

Habitat: Northern Territory; Daley River (♂, no date given). This specimen is in the South Australian Museum; New South Wales; Forest Reefs (1 ♀, Lea., no date given). This has been made the female allotype and has been deposited in the Queensland Museum, No. 3505.

Krober originally described the species from a male taken at Peak Downs (Northern Territory ?) and lodged the type in the Hamburg Museum.

ACRASPISA NIGRINOTA *sp. nov.*

Length: 6-9 mm.

Male: Head with the occiput shining black; eyes separated on the vertex by the width of the ocellar tubercle and touching below this for two-thirds the length of the front and from thence diverging with the anterior margins slightly concave; ocelli bright brown; front shining black, ornamented with a fine median longitudinal furrow, bare; antennae brown with segment 1 half as long again as 2; 3 is almost four times as long as 1 and 2 united and is hardly broader than the other segments; the arista is less than one half the length of the style; proboscis brown, projecting as far forward as the apex of the first antennal segment; palpi brown and nearly as long as the proboscis.

Thorax bright brown with an anterior dorsal area of shining black; furnished with 1 pre-alar, 1 inter-alar, 1 post-alar and 4-6 pre-scutellar bristles; pleurae, scutellum and postscutellum bright brown.

Abdomen twice as long as the thorax; tapering; shining black, black haired; venter black with brown reflections; genitalia light brown.

Legs bright yellow-brown with brown reflections; anterior tarsi black.

Wings hyaline with three irregular grey cross bands, the central one of which is broad and extends from the base to the apex of the median cell, the others are narrow; veins M1 and M2 arise together from the median cell and are joined for a short distance before branching; cell M3 is slightly longer and broader than the median.

The female differs from the male in having the eyes separated on the vertex by three times the width of the ocellar tubercle, with the anterior margins straight and uniformly diverging, the front shining black and the intermediate tarsi as well as the anterior, black. The genital spines are brown.

Variations: The intermediate tarsi of the male may be brown also.

Holotype: Male, Gogango (A. P. Dodd, December, 1928), in the Queensland Museum, No. 3281.

Allotype: Female, Brisbane (G. H. Hardy, October, 1928), and in his collection in Brisbane.

Paratype: Male, Gogango (A. P. Dodd, December, 1928), in the author's collection.

Habitat: As above, Gogango and Brisbane, Queensland.

The species is distinguished from the others by the general colour.

ACRASPISA OBSCURIPES sp. nov.

Length: 5-8 mm.

Male: Head with the occiput shining black; eyes separated on the vertex by the width of the ocellar tubercle and contiguous below this for half the distance to the antennae and from thence broadly diverging with the anterior margins somewhat concave; ocellar tubercle black; ocelli bright brown; front black, grey tomentose; antennae black with some brown reflections, segment 1, twice as long as 2; 3, three times as long as 1 and broader than the other segments; arista one-fourth the length of the style; face and cheeks black, grey tomentose and the latter bearing greyish hairs; proboscis and palpi black, black haired, the former projects as far forward as the middle of the third antennal segment and the latter are two-thirds the length of the former.

The thorax is shining black and is furnished with 3 pre-alar, 1 inter-alar, 2 post-alar and 6 pre-scutellar bristles, all of which are black and weakly developed; pleurae, scutellum and postscutellum shining black.

Abdomen one and one half times as long as the thorax, straight sided and shining black with segments 1-3 mainly dull brown; the whole black and brown haired; venter shining black; genitalia bright brown.

Legs black-brown, somewhat brown at the base of the tarsi.

Wings hyaline with three faint grey narrow cross bands, one near the base, one at the apex of the median cell and the other just prior to the wing tip; veins M3 and M4 similarly with Cu1 and 1A meet well before the border; M1 and M2 issue from the median cell together and are joined for a short distance before branching away from each other; cell M3 and the median are about the same size.

The female differs from the male considerably: Eyes separated on the vertex by twice the width of the ocellar tubercle and then uniformly diverging with the anterior margins straight; front dull black, white at the eye margins and finely striated; thorax wholly red-brown with black reflections anteriorly and laterally; pleurae red-brown with a silver longitudinal stripe just above the coxae; scutellum bright brown with black margins; segments

2-3 of abdomen bright brown. The genital spines are black and weakly developed.

Variations: The antennae may be almost entirely brown and veins M1 and M2 may vary considerably in their origin, and instead of arising as herein described they may be normal or issue as in *trifasciata*. In this connection it might be mentioned that Krober (Ent. Mitt., 1, p. 286, 1912) erected the genus *Pseudolorocera* on a female specimen of an insect from Peak Downs, and used, as the primary character for the genus, the fact that the veins M1 and M2 arose "together as forked veins from the upper corner of the discoidal cell." In view of the aforementioned gradation of the character, this genus could not possibly be maintained without supporting structural differences. As the species is unknown to me the question of the possible synonymy of *Pseudolorocera* will have to be left in abeyance.

Holotype and Allotype (G. H. Hardy, Brisbane, March, 1929, *in copula*) in G. H. Hardy's collection, Brisbane. Paratypes in the Queensland Museum and in the author's collection.

Habitat: Queensland, Brisbane (H. Hacker, 10 ♂, 1 ♀, September, 1914), Chinchilla (A. P. Dodd, 3 ♂, November, 1927).

The species is readily separated from the other members of the genus in both sexes by the general coloration.

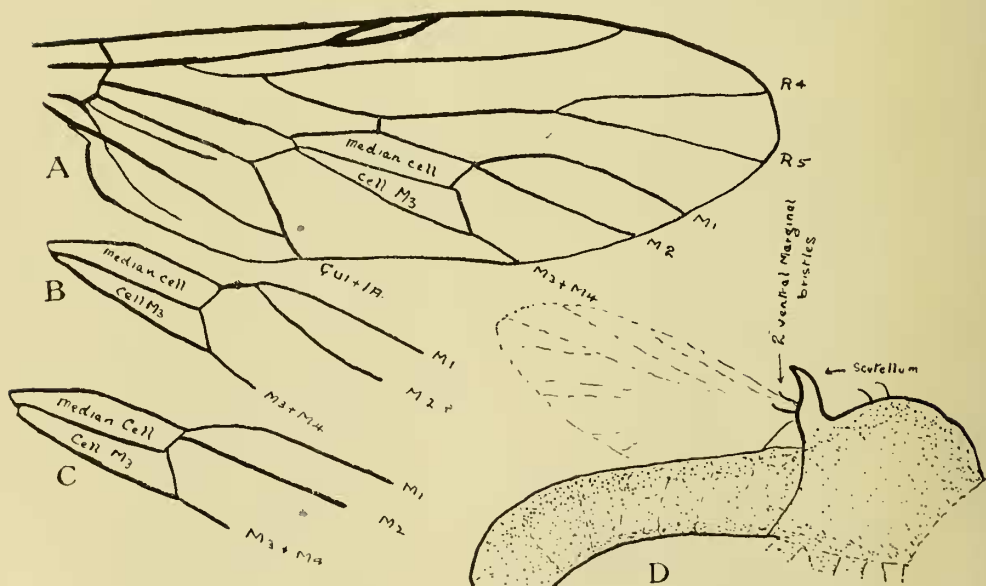


Fig. 2.

Acraspisa obscuripes sp. nov.

- A. Complete wing.
- B. } Showing variations in the origin of veins M1 and M2.
- C. }
- D. Thorax, lateral view, to show scutellum and the two ventral marginal bristles.

Genus ACUPALPA.

Acupalpa Krober, Ent. Mitt., 1, p. 152, 1912.

Moderately sized species with the head sub-hemispherical, slightly or considerably flattened above, slightly broader than the thorax, distinctly broader than long; occiput slightly or deeply concave and fringed with black hairs and bristles; eyes large, bare, separated in both sexes, but more so in the female than in the male, anterior margin convex, or straight, facets uniform; ocellar tubercle large, oval and raised; front bare, sparsely pubescent or somewhat sculptured; antennal tubercle prominent, sometimes bilobate, always bare; antennae, in relation to the anterior margin of the eye, are inserted at about half its depth, separated at the base with the first segments parallel and the remainder divergent, longer than the head, segment 1 cylindrical, beset with black hairs and bristles, segment 2 somewhat globular and flattened at the extremities and also beset with black hairs and bristles, segment 3 elongate-conical or irregularly cylindrical when viewed in profile, sometimes broader than the other segments, haired at the base only in most instances; style one-segmented (composed of 2 segments in *semirufa*); arista present and rather stoutly developed; face produced bulbous-like and projecting forwards; bare or pubescent; cheeks receding and clothed with long fine hair; proboscis elongate, projecting as far forward as the apex of the antennae, labella reduced in comparison with those of other genera, base narrowed; palpi one-segmented (two-segmented in *pollinosa*) and almost as long as the proboscis, somewhat sharp pointed, pubescent.

Thorax convex above, longer than the head, furnished with 3-4 pre-alar, 1-3 inter-alar, 0-1 post-alar and 2-4 pre-scutellar bristles, all of which are black; scutellum semicircular and armed with 2-4 marginal bristles; postscutellum convex and well hidden beneath the scutellum.

Abdomen one and one half to twice as long as and as broad as or slightly broader than the thorax; flattened dorsally; straight-sided; silvery pollinose in the males.

The legs are of moderate length; the tibiae and tarsi bear numerous bristles; the femora are haired but devoid of bristles.

The wings are banded, always longer than the abdomen; veins M3 and M4 similarly with C_u1 and 1A coalesce well before the border; cell M3 may be narrower or broader than the median but is always longer; costa and hind margin ciliated; stigma distinct.

The sexes are similar, there being but a slight variation of colour besides the usual sexual differences.

Genotype: *Acupalpa rostrata* Krober.

Range: Peculiar to Australia.

Distribution: The typical species is known from Sydney only (the type locality); *albitarsa* and *semirufa* extend from New South Wales to Southern Queensland and the latter has been taken at Mount Tambourine (2,000 ft.); *pollinosa* and *semiflava* are known from Southern Queensland only.

A somewhat heterogeneous collection of species which may, when more material is available, have to be split up in one or two additional genera. *A. pollinosa* and *semirufa* exhibit the greatest amount of divergence from the characteristics of the typical species, the former in having two segmented palpi and the latter a two-segmented style.

The genus is readily recognised by the elongate and somewhat sharp pointed proboscis and palpi together with the protruding face, pollinose abdomen in the males and banded wings.

Key to the Species of Acupalpa.

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|--|---------------------------|
| 1. Abdomen wholly black. | 2. |
| Abdomen otherwise coloured. | 3. |
| 2. The four apical tarsal segments of all legs white. | <i>albitarsa</i> sp. nov. |
| The apical half of the basal and the whole of the second anterior tarsal segments, whitish; the basal intermediate and posterior tarsal segments brownish white. | <i>pollinosa</i> sp. nov. |
| The posterior femora black, others orange; antennae brown. | <i>rostrata</i> Krober. |
| 3. Segments 2-3 of abdomen largely reddish. | <i>semirufa</i> sp. nov. |
| Segments 1-3 of abdomen yellow. | <i>semiflava</i> sp. nov. |

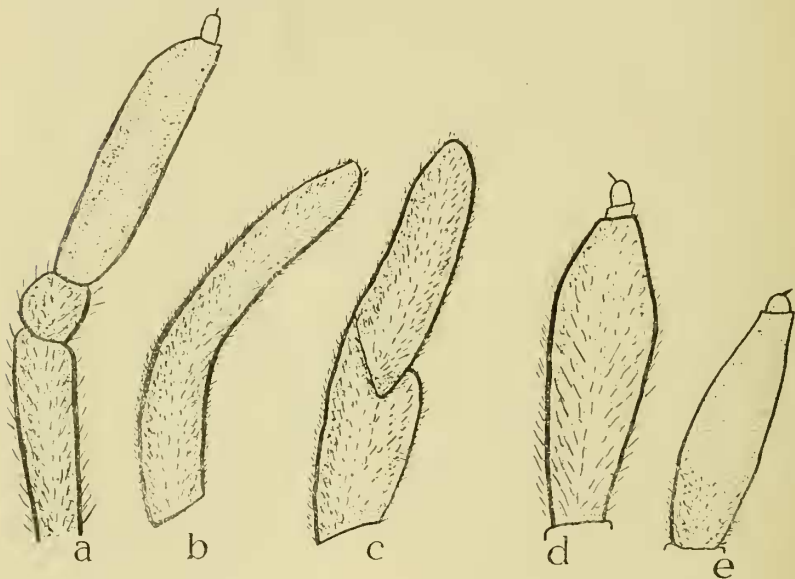


Fig. 3.

- a. antenna of *Acupalpa albitarsa* sp. nov.
 b. palp of *Acupalpa albitarsa* sp. nov.
 c. palp of *Acupalpa pollinosa* sp. nov.
 d. third antennal segment of *Acupalpa rostrata* Krober.
 e. third antennal segment of *Acupalpa semiflava* sp. nov.

ACUPALPA ALBITARSA sp. nov.

Length: 6-9 mm.

Male: Head with the occiput deep black, grey at the eye margins, and fringed with a marginal row of rather weak black bristles; eyes separated on the vertex by the width of the ocellar tubercle with the anterior margins straight and parallel for one half of the length of the front and from thence widely diverging; ocellar tubercle dull black ocelli shining brown; front small, dull black with greyish tomentum on the sides and towards the vertex, sparsely covered with black hairs; antennal tubercle dull black;

antennae separated slightly at the base, one and two-third times as long as the head, brown-black with the basal half of the first segment brown; segment 1 almost as long as the head; 2 one-sixth the length of 1; 3 slightly longer than 1, cylindro-conical and furnished with a few black hairs; style broadly conical, its greatest width being almost equal to its length; the arista is one-fourth the length of the style; cheeks dull black; proboscis brown-black; palpi black and almost half the length of the proboscis, beset with short black hair.

Thorax very little longer than and hardly as deep as broad, twice as long as the head; dull black dusted with irregular patches of brown tomentum; covered with black and brown hairs; ornamented with faint indications of fine longitudinal parallel stripes; furnished with 3 pre-alar, 1 inter-alar and 4 pre-scutellar bristles, all of which are black; pleurae black, grey tomentose; scutellum velvet brown-black and bearing 4 black bristles, all of which are but weakly developed; postscutellum black.

Abdomen almost twice as long as and about as broad as the thorax; slightly tapering, somewhat cylindrical; dull black; segments 2-3 slightly silvery pollinose, apically margined white and with an irregular triangular median brown area; vertex shining black; genitalia brown.

Legs brown-black; the bases of the fore and middle tibiae somewhat lighter; the four apical tarsal segments of all legs white.

Wings hyaline with the tip and two indistinct cross bands brown; one band extends from the base to the apices of the basal cells where it is irregularly confluent with the other which crosses the median cell; cell M3 considerably narrower but slightly longer than the median. The halteres are bright yellow.

The female is unknown.

Variations: The thoracic stripes and wing banding may be more or less distinct; the silvery pollen on the abdomen may extend from the first to the third segment and the first may be also apically margined white.

Holotype: Male, Brisbane (H. Hacker, September, 1914), is in the Queensland Museum, No. 3282, together with 10 paratypes; 2 paratypes in Dr. I. M. Mackerras' collection, Sydney, and one in Dr. A. J. Nicholson's, at the Sydney University.

Habitat: Queensland, Brisbane (19 ♂, H. Hacker, September, 1914); New South Wales, Woodford (2 ♂, I. M. Mackerras, November, 1925); Como (♂, A. J. Nicholson, November, 1923).

The species differs from the genotype in having a distinctly less pyriform head and a slightly more cylindrical and less flattened abdomen, but I do not consider that these are of sufficient importance to warrant placing same in some other genus.

Readily distinguished from *semirufa* and *semiflava* by the all black abdomen and from *rostrata* and *pollinosa* by the colour of the legs.

ACUPALPA POLLINOSA *sp. nov.*

Length: 6-9 mm.

Male: Head with the occiput deeply concave, shining black and fringed with black hairs and bristles; eyes separated on the vertex by the width of the ocellar tubercle, converging very slightly below this for a short distance and from thence convexly diverging; ocellar tubercle black; ocelli dark brown; front small and narrow, black, ornamented with a small tubercle just below the ocelli and with faint indications of diagonal striae; antennal tubercle divided longitudinally for half the length by a deep and narrow furrow, shining black; antennae slightly longer than the head, black-brown with segment 1 almost three times as long as 2 which is slightly less than one-fifth the length of 3; 3 is irregularly cylindrical, twice as long as 1 and

longer than 1 and 2 united, hardly broader than 2 at its broadest point and furnished with long black hair near the base; style and arista very short and united, they are about half the length of the second antennal segment; face shining black, swollen bulbous-like and projecting as far forward as the antennal tubercle, clothed with long black hair; cheeks dull black becoming grey under the eyes and bearing white and blackish hairs; proboscis brown-black covered with short black hair; palpi black covered with short black hair and three-fourths the length of the proboscis, 2 segmented, the basal segment being stouter and one-third the length of the apical.

Thorax slightly longer than and about as deep as broad, slightly more than twice as long as the head; black, with the anterior margin and the anterior-lateral angles greyish and with indications of two parallel longitudinal greyish stripes; humeral calli shining black; furnished with 3 pre-alar, 1-2 inter-alar, 1 post-alar, and 4 pre-scutellar bristles, all of which are long, black and weakly developed; pleurae black, grey tomentose; scutellum shining black furnished with 2 long convergent marginal bristles; postscutellum dull black.

Abdomen slightly more than twice as long as and as broad as the thorax; tapering very slightly; black, segments 1-4 silvery pollinose; 3 apically margined white; clothed with rather long white and black hairs; venter similarly coloured, except for the silvery pollen; genitalia brown.

Legs black with some brown reflections; the apical half of the basal and the whole of the second anterior tarsal segments whitish; the basal intermediate and posterior tarsal segments brownish-white.

Wings slightly longer than the abdomen, three times as long as broad; hyaline, with 3 irregular, dark grey crossbands, one of which crosses the basal cells at the apex, and is as broad as half their length, the second crosses at the median cell and is as broad as that cell is long, the third is faint and narrow and crosses at the fork of R4 and R5; cell M3 is broader and longer than the median. The halteres are brown with pale yellow apices.

The female is unknown.

Holotype: Male, Brisbane (H. Hacker, September, 1914), in the Queensland Museum, No. 3283.

Paratypes in the Queensland Museum and the author's collection.

Habitat: Queensland, Brisbane (H. Hacker, 7 ♂, September, 1914), Caloundra (H. Hacker, 1 ♂, October, 1913).

A. pollinosa differs from the typical species in having two-segmented palpi; it may not be con-generic, but I cannot find any other structural differences of sufficient importance to justify making a new genus.

The species is separated from *semirufa* and *semiflava* by the colour of the abdomen, from *rostrata* by the colour of the femora and from *albitarsa* by the colour of the tarsi.

ACUPALPA ROSTRATA.

Acupalpa rostrata Krober, Ent. Mitt., 1, p. 152, 1912.

Length: 8-10 mm.

Male: Head flattened considerably above; occiput slightly concave, black; eyes separated on the vertex by slightly more than the width of the ocellar tubercle, slightly convexly diverging below this for one-third the length of the front and from thence more abruptly, the anterior margin is convex; ocellar tubercle black, ocelli brown; front dull black, bare; antennal tubercle shining black, covered sparsely with black hairs; antennae slightly longer than the head, segment 1 brown, slightly more than one half the length of 3; 2 brown, one-third the length of 1; 3 slightly longer than 1 and

2 united, elongate conical, black and clothed with long black hairs; arista two-thirds the length of the style; face shining black, covered with rather long black pubescence, swollen bulbous-like and projecting almost as far forward as the antennal tubercle; cheeks shining black, becoming grey under the eyes and bearing grey and blackish hairs; proboscis brown-black; palpi brown-black, almost as long as the proboscis and beset with long black hair.

Thorax very little longer than and hardly as deep as broad, twice as long as the head; black, dusted with grey tomentum; ornamented with three indistinct parallel grey stripes; furnished with rather long black pubescence, 4 pre-alar, 2 inter-alar and 4 pre-scutellar bristles; pleurae similarly coloured; scutellum black and furnished with 4 black bristles; postscutellum black.

Abdomen one and one half times as long as but hardly broader than the thorax, tapering slightly; black, segments 1-4 silvery pollinose, 2 and 3 apically margined white; venter dull black; genitalia brown.

Legs orange; coxae, hind femora except for the extreme apices, apical half of hind tibiae, 3 apical tarsal segments of all legs and apices of fore and middle tibiae black; 2 basal tarsal segments of fore and middle tarsi, white; the orange on the hind legs is somewhat darker than that on the others.

Wings hyaline, with dark grey tip and two bands, one crossing the basal cells and the other the median cell; cell M3 broader and slightly longer than the median cell. The halteres are black with white apices.

The female differs from the male only in having the eyes separated on the vertex by as much again as the width of the ocellar tubercle.

Habitat: New South Wales, Collaroy (1 ♀, V. Irwin-Smith); Ryde (1 ♂, December, 1925); Kogarah (1 ♂, I. M. Mackerras, November, 1927); Manly (2 ♀, November, 1923).

This is the typical form of the genus and can be distinguished from all the others by the colour of the legs, distinct wing banding together with the general black coloration.

ACUPALPA SEMIRUFA sp. nov.

Length: 8-14 mm.

Male: Head with the occiput slightly concave and black; eyes with the anterior margins convex, separated on the vertex by slightly more than the width of the ocellar tubercle, slightly convexly diverging below this for one-third the length of the frons and from thence more abruptly; ocellar tubercle black; ocelli brown; front black, bare, ornamented with very fine indistinct striae; antennal tubercle shining black, divided longitudinally by a shallow, indistinct groove; antennae brown-black, one and one half times as long as the head, segment 1 slightly more than half the length of 3; 2 about one-third the length of 1; 3 irregularly cylindrical, slightly broader than the other segments, longer than 1 and 2 united and beset with black hairs and pubescence; style two segmented, the first of which is about half the length and slightly broader than the second and both are somewhat rectangular in shape; the arista is about one-fourth the length of the style; face shining black, the lower half produced and divided longitudinally, forming a bilobed bulbous-like protuberance just above the mouth opening, clothed sparsely with black pubescence; cheeks black becoming grey under the eyes and bearing whitish hairs; proboscis brown-black, black haired and projecting as far forward as the middle of the third antennal segment; palpi similarly coloured, almost as long and tapering.

Thorax very little longer than and as deep as broad, three times as long as the head; dull black with indications of three greyish longitudinal

dorsal stripes which become more and more indistinct as they extend towards the scutellum; furnished with black pubescence, 4 pre-alar, 3 inter-alar and 2 pre-scutellar bristles; pleurae black; scutellum black and provided with 4 elongate but weak bristles and fringed with black pubescence; postscutellum dull black.

Abdomen one and one half times as long as and slightly broader than the thorax, covered with silvery pollen and black and white pubescence; black with sides of segments 2-3 largely reddish; venter black segments 2 and 3 reddish; genitalia brown.

Legs reddish; coxae, apices of anterior femora, apical two-thirds of anterior tibiae, apices of intermediate and posterior tibiae, extremities of intermediate and posterior tarsi, basal half of first and the whole of the apical three anterior tarsal segments, black; remaining anterior tarsal segments white and the remainder of the intermediate and posterior tarsi brown.

Wings hyaline with three dark grey bands, the first crossing at the apices of the basal cells, the second the median cell and the third at the tip of the wing; cell M3 both broader and longer than the median; veins yellowish; halteres brown-black with yellow apices.

The female differs from the male as follows: Eyes separated on the vertex by as much again as the width of the ocellar tubercle; front broader, the fine striae replaced by rugae; facial protuberance not divided longitudinally; abdomen two and a half to three times as long as the thorax, segments two and three mainly reddish, the silvery pollen is absent; cross-bands of wing considerably darker in colour and the two nearest to the base coalesce slightly medianly; the legs are of a darker red; genital spines red.

Holotype: Male, taken at Blackheath, New South Wales (by G. H. Hardy) and is in his collection, Brisbane.

Allotype: Female, from Bribie Island, Queensland (H. Hacker), in the Queensland Museum, No. 3494.

Habitat: New South Wales, Sydney (G. H. Hardy, 1 ♀, December, 1918); Manly (2 ♀, November, 1923); Blackheath (2 ♂, G. H. Hardy, November, 1919); Queensland, Tambourine Mountain (1 ♀, H. Hacker, November; 3 ♀, J. Mann, December, 1925); Bribie Island (1 ♀, H. Hacker, September, 1918).

This species is provisionally placed as an *Acupalpa*. I am reluctant to form new genera at the present juncture owing to the lack of material from which to draw conclusions. The style in *semirufa* is definitely two segmented, whereas that of *rostrata* (the genotype) is composed of one segment. When dealing with group 1 of part 1 of these studies (Aust. Zoologist, vol. 5, part 2, 1928) I formed the opinion that the style afforded excellent characters for generic segregation, but since working over this second group I am convinced that the validity of certain characters as generic criteria depends entirely on the particular group. Whereas, the two-segmented style in 1 would indicate a separate genus from a species with same composed of one segment only; in 2 the indications may not necessarily be such. With this in view I have decided to place the present species in *Acupalpa* for the time being. It can readily be distinguished by the colour of the abdomen.

ACUPALPA SEMIFLAVA sp. nov.

Length: 6-9 mm.

Female: Head with the occiput slightly concave, black; eyes separated on the vertex by almost as much again as the width of the ocellar tubercle and from thence diverging with the anterior margins practically straight; ocellar tubercle black; ocelli brown; front black, sparsely pubescent, orna-

mented with a few indistinct, longitudinal striae; antennal tubercle bilobate, shining black; antennae black, segment 1 almost two-thirds the length of 3; 2 one-third the length of 1; 3 slightly longer than 1 and 2 united, somewhat conical and slightly broader than the other segments; style received into the apical hollow of the last antennal segment; the arista is rather thick at the base and is about two-thirds the length of the style; face shining black, bare except for fringe of stiff black hairs, protruding bulbous-like almost as far forward as the antennal tubercle; cheeks black, becoming silver-grey as they descend under the eyes, with black and whitish hairs; proboscis brown-black and black haired; palpi brown-black and beset with long black hair, two-thirds the length of the proboscis.

Thorax one and one half times as long as and about as deep as broad, two and one half times as long as the head; dull black; ornamented with 3 indistinct grey parallel stripes; furnished with a few black bristles which appear to vary individually and clothed with black pubescence; pleurae black, grey tomentose; scutellum velvet-black furnished with 2 strong and 2 weak bristles; postscutellum brown-black.

Abdomen three times as long as, and, at its broadest point as broad as the thorax, tapering; segments 1-3 yellow and the remainder black; the whole clothed with black pubescence; venter similar; genital spines reddish.

Legs black-brown; knees and first tarsal segments of the middle and hind legs pale-brown; the 2 anterior basal tarsal segments white.

Wings hyaline with tip and two crossbands dark grey, the first of these bands is narrow and crosses at the apices of the basal cells and the other crosses the median cell and is as broad as that cell is long; cell M3 hardly as broad as, but slightly longer than the median.

The halteres are brown with pale yellow apices.

The male is unknown.

Holotype: Female, Brisbane (H. Hacker, September, 1914), is in the Queensland Museum, No. 3495, together with paratypes; and further paratypes in G. H. Hardy's and the author's collection, Brisbane.

Habitat: Queensland, Brisbane (4 ♀, September, 1912; 1 ♀, October, 1913; 4 ♀, September, 1914; and 1 ♀, October, 1916, H. Hacker; 1 ♀, G. H. Hardy, October, 1926).

The species can readily be distinguished by the colour of the abdomen.

Genus AGAPOPHYTUS.

Agapophytus Guerin, Voy. Coq. Zool., T., 1, pt. 2, p. 289, 1830; *Id.*, Krober, Ent. Mitt., 1, p. 233, 1912; *Phycus* White, Proc. Roy. Soc. Tasm., 1915.

Moderate to large species with the head subhemispherical or transverse, distinctly, or twice as broad as long and slightly broader than the thorax; occiput deeply concave and fringed with black hairs and bristles; eyes bare, large and descending well down on to the cheeks, facets uniform, separated in both sexes, but slightly more so in the female than in the male; ocellar tubercle large, oval, distinctly raised and provided with tufts of black hair or else bare; ocelli three in number; front convex, bare and smooth or slightly sculptured and sometimes haired; antennal tubercle slightly raised and sometimes bilobate; antennae, in relation to the anterior margin of the eyes are inserted at about half its depth, they are considerably longer than the head with segment 1 considerably or slightly longer than the head (except in *imitans*) and this segment is cylindrical and parallel sided, segment 2 is somewhat rectangular and 3 is irregularly elongate-conical and sometimes somewhat compressed towards the apex; the two basal segments bear

numerous black hairs and bristles or are haired only; style one-segmented (composed of 2 segments in *ruficaudus* and *aterrimus*); face and cheeks small, the latter bearing long fine hair; proboscis stout and projecting slightly; palpi two-segmented.

Thorax convex above, haired and provided with 3-5 pre-alar, 1-2 inter-alar, 1-4 post-alar and 2-4 pre-scutellar bristles and may also bear scales; scutellum semicircular and provided with 0-2 marginal bristles and, or, a marginal tuft of hairs; postscutellum large and convex and well hidden beneath the scutellum.

Abdomen slightly longer but narrower than the thorax, cylindrical but slightly flattened above; haired; genitalia retracted.

Legs of normal length, the tibiae and tarsi bearing numerous bristles but the femora are devoid of such.

Wings banded and comparatively broad; veins M3 and M4 similarly with Cu1 and 1A coalesce well before or slightly before the wing border; cell M3 may be longer and narrower than the median or else longer and broader than that cell; costa and hind margin ciliated.

The sexes are similar showing a slight variation in colour only and the individuals of any species vary slightly. The group is very homogeneous and the species are closely allied.

Genotype: *Agapophytus australasiae* Guerin.

Range: Australia only; one species (*A. distinctus*) from an unknown locality was described by Walker and this is possibly Australian. It has not been recognised.

Distribution: The typical species is known from New South Wales and Queensland, *flavicornis*, *albobasalis*, *ruficaudus* and *squamosus* from Queensland only; *aterrimus* extends from Victoria through New South Wales to Queensland, while *varipennis* is known from New South Wales only and *quatiens* from Tasmania only. White's *imitans* has been found on Tambourine Mount (2,000 ft.) Queensland, in addition to the type locality in Tasmania, but *albopunctatus*, which was described from South Australia, is not known to me outside of Victoria.

Synonymy: Guerin-Meneville, in Duperrey, Voy. "Coquille" (Atlas, Ins., pl. xi., fig. 15) used the name *Agapophyta bipunctata* for a genus and species of HEMIPTERA in 1827-30 and published the description of the genus in 1838 (Zool., ii., (2), 1, p. 163) and in the same publications he first figured *Agapophytus australasiae* and then described the genus in the latter work on page 289. In consequence of this the question of regarding the name *Agapophytus* as being preoccupied in HEMIPTERA by page precedence has arisen. I am indebted to Mr. A. Musgrave of the Australian Museum for drawing my attention to the above references.

I have decided to leave the name unchanged, because the difference in the ending of the two names is sufficient to distinguish them in the eyes of the International Code. It is true that many do not agree with this particular law, but it seems that one is in the position of a judge who must administer the law as he finds it, and who can only have it altered by the legislature. The recent international congress did not touch this particular law, although they did alter the Law of Priority.

The law in question is quoted below:—

"Article 34.—A generic name is to be rejected as a homonym when it has previously been used for some other genus of animals. *Rec.* It is well to avoid the introduction of new generic names which differ from the generic name already in use only in termination or in a slight variation in spelling which might lead to confusion. But when once introduced, such names are

not to be rejected on this account. Example. *Picus, Pica*, are valid but undesirable."

White's interpretation of the genus *Phycus* has been placed as a synonym of *Agapophytus*; an examination of this author's species and a series of *Agapophytus* did not reveal any structural differences of sufficient importance to justify the separation of the two. There is a complete gradation of the characters given by White between the two genera and one is not able in many cases to decide to which genus a particular insect should be referred. It is not possible for me to decide whether *Phycus* is a synonym of *Agapophytus* or not as the former was originally described from India and is known from South Europe, Asia, Africa and South America also. The group may be quite a definite conception in these countries and White's identification of same just the opposite. Both Schiner and Krober described the genus from Australia, but their species have not been recognised. In view of the latter worker's knowledge of the world's genera my belief that it may occur in this country is strengthened, but White's species certainly cannot be separated from the Australian genus.

Key to the Species of Agapophytus Guerin.

1. Antennae and anterior tarsi wholly yellow; wings tinged grey with a broad dark grey cross band. *flavicornis* sp. nov.
Antennae at most with first two segments yellow. 2.
2. All femora mainly black, the tip of the anterior femora only may be otherwise coloured. 3.
Femora coloured otherwise. 6.
3. Anterior tibiae wholly yellow and remaining tibiae black; wings tinged grey with a dark grey cross band. *australasiae* Guerin.
Anterior and middle tibiae wholly yellow and remaining tibiae black; wings grey with two yellow cross bands. *albopunctatus* Roder.
Anterior tibiae mainly black; they may be otherwise coloured at the apices. 4.
4. Abdomen with apical segments wholly black. 5.
Abdomen with segments 4-7 ferrugineous. *ruficaudus* sp. nov.
5. Thorax densely covered with white scales; legs wholly black except for apices of anterior tibiae which are dirty white; wings smoky with two broad yellow cross bands. *aterrimus* sp. nov.
Thorax without scales; legs black, the whole of the first anterior tarsal segments except for the tip cream coloured and the basal two-thirds of the first tarsal segments of the middle and hind legs are yellowish white; abdomen with the first segment white. *albobasalis* sp. nov.
6. Wings grey with a broad yellow cross band; thorax with whitish scales; legs mainly red. *squamosus* sp. nov.
Wings mottled grey or at most with irregular grey cross bands; thorax without scales; legs coloured otherwise. 7.
7. Tarsi black except for the hind ones which are dark brown; hind tibiae dark brown except for the extreme apices, which together with the rest of the legs, are bright brown. *varipennis* sp. nov.
Not such. 8.
8. Legs dark orange, apical half of fore and extreme apices of hind tibiae and basal half of the first anterior tarsal segments black; remainder of anterior tarsi pale yellow; middle tarsi brown. *imitans* White.
Legs orange except for the black apical tarsal segments of all legs.
. *quatiens* White.

In the material before me I have numbers of new species, but all are represented by single or damaged specimens, so I am refraining from describing these until more are available.

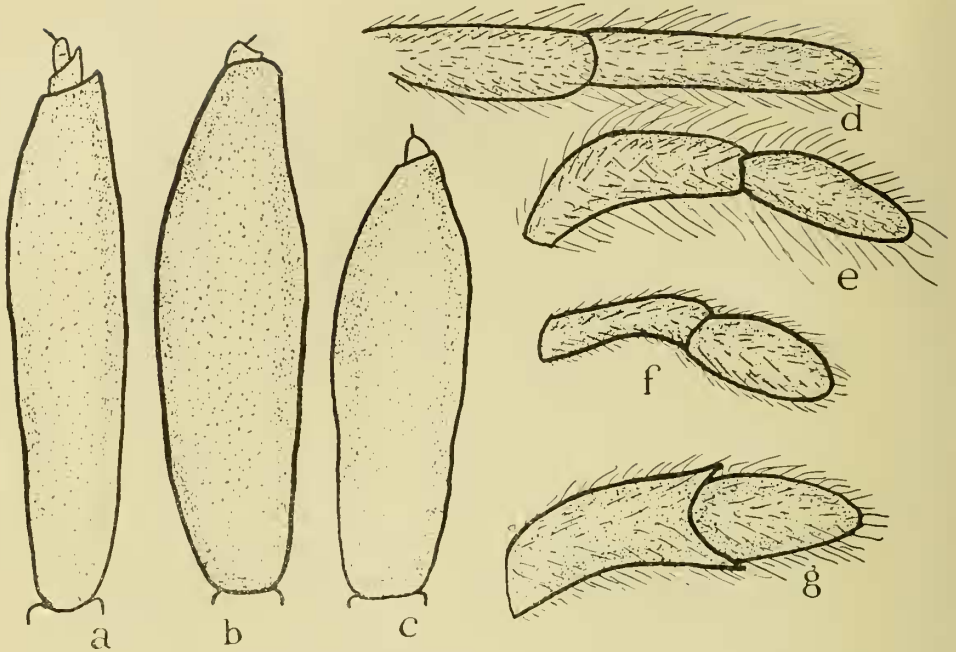


Fig. 4.

- a. third antennal segment of *Agapophytus ruficaudus* sp. nov.
 b. third antennal segment of *Agapophytus squamosus* sp. nov.
 c. third antennal segment of *Agapophytus varipennis* sp. nov.
 d. palp of *Agapophytus flavicornis* sp. nov.
 e. palp of *Agapophytus australasiae* Guerin.
 f. palp of *Agapophytus quatiens* White.
 g. palp of *Agapophytus varipennis* sp. nov.

AGAPOPHYTUS FLAVICORNIS sp. nov.

Length: 12-15 mm. (including antennae).

Male: Head distinctly broader than long, slightly broader than the thorax; occiput black, eye margins fringed grey; eyes separated on the vertex by slightly more than the width of the ocellar tubercle and from thence widely diverging with the anterior margins practically straight; ocellar tubercle bare, prominently raised and brown; ocelli orange; front bare, dark yellow with some orange reflections and mostly orange on the vertex; antennal tubercle yellow; antennae 4-5 mm. long, wholly yellow, at least three times as long as the head, segment 1 black haired with a few bristles at the apex only, as long 2, 3 and style united; 2 one-sixth the length of 1 and bearing numbers of black hairs and bristles; 3, slightly compressed towards the apex, very slightly broader than the other segments and slightly more than two-thirds the length of 1, sparsely black haired; style one-third the length of the second antennal segment; arista black and

half the length of the style; face bare, yellow with some whitish tomentum towards the sides; cheeks orange brown, becoming grey under the eyes and bearing black and brown hairs; proboscis brown-black, sparsely black and brown haired and projecting as far forward as one-third the length of the first antennal segment; palpi filiform the basal segment being rather stouter than the apical but of about the same length, brown and rather densely long brown haired, especially on the basal segment, they are about two-thirds the length of the proboscis.

Thorax slightly more than half the length of the abdomen, hardly more than twice as long as its greatest width, almost as deep as long and about three times as long as the head; dull black; clothed with black and white pubescence; ornamented on either side with an obliquely set brown and rather broad stripe which extends from the wing base for one-third the distance to the head, there is a trace of a median transverse similarly coloured stripe also; furnished with 4 rather strong black pre-alar bristles; pleurae dull black, covered with grey tomentum; scutellum dull black and furnished with two short black bristles; postscutellum dull black.

Abdomen hardly twice the length of the thorax; dull black clothed with black and white pubescence; segments 2-3 show traces of a brown dorsal area near to the anterior margins; venter similarly coloured and clothed; genitalia brown.

Legs dull black, anterior femora with sides and the underside and apical third dark brown; remainder of anterior legs, including tarsi, yellow with a somewhat greenish reflection; the coxae bear a few black bristles and some tufts of whitish hair.

Wings tinged grey with a rather broad dark grey cross band extending in width from the base of the median cell to just prior to the wing tip; venation as in *australasiae*.

The female differs from the male by having the eyes very slightly more widely separated on the vertex, the front mostly orange, some brown reflections on the thorax and abdomen, less brown on the anterior femora and by the absence of the olive reflections on the anterior tibiae and tarsi.

Variations: The colour of the anterior tibiae and tarsi varies from orange-yellow to yellow, and the olive reflections may be present or absent in either sex. The front in both sexes varies between yellow and orange.

There are two males from West Australia, Harvey (L. J. Newman, January) before me, which may represent a distinct species; they differ from the typical form as follows:—

Front black on the upper half, lower half orange; segments 2 and 3 of the antennae are black; cheeks black; proboscis and palpi black; segment 2 of the abdomen apically margined grey; wings except for the hyaline tip dark grey.

There is a further female from South Queensland, Goondiwindi (F. H. Roberts, December, 1927) which differs again as follows:—

Front black covered with grey tomentum; ocellar tubercle black, ocelli clear; antennal tubercle rather prominent and orange; antennae yellow with segment 2 and the basal fourth of 3 grey-brown; face mostly silvery grey tomentose; cheeks black; proboscis and palpi black; thorax and abdomen with patches of brown and clothed with considerably more grey tomentum; anterior femora except for the orange apical fourth, wholly black; the cross band of the wing rather more black than dark grey.

A. flavicornis is distinguished from *australasiae* by the wholly yellow antennae and anterior tarsi, by the wholly black intermediate and posterior tarsi and by the wings having one cross band only.

A Hymenopterous-like Therevid, which is generally found running up

and down the trunks of trees, particularly *Eucalyptus*; dead or burned stumps appear to attract the species also.

Holotype: Male, Brisbane, Queensland (H. Hacker, October, 1921) and allotype, female, Ferny Grove, Queensland (J. Mann, January, 1923), both in Queensland Museum, No. 3496, together with 11 male paratypes, No. 3497. Further paratypes in G. H. Hardy's and the author's collection, Brisbane.

Habitat: Queensland, Brisbane (1 ♂, 5 ♀, November-January, 1922-26, G. H. Hardy; 10 ♂, November-January, 1912-16, H. Hacker); Ormiston (1 ♂, November, 1924, H. Hacker); Westwood (2 ♂, October, 1923, A. N. Burns); Chinchilla (1 ♂, G. R. Bassingthwaighte, November, 1926).

AGAPOPHYTUS AUSTRALASIAE.

Agapophytus australasiae Guerin, Voy. Coq. Zool., p. 290, 1833; *Id.*, Roder, Berl. Ent. Zeitz., xxix., p. 138, 1835; *Id.*, Krober, Ent. Mitt., 1, p. 234, 1912; *Agapophytus pyrrhotelus* Walker, List. Dipt. Brit. Mus., 5, suppl. 1, p. 321, 1854.

Length: 11-15 mm. (including antennae).

Male: Head slightly wider than the thorax and distinctly broader than long; occiput black, yellow along the eye margins; eyes separated on the vertex by as much again as the width of the ocellar tubercle, concavely diverging below this; ocellar tubercle bare, and dull black; ocelli yellowish; front bare or at most tomentose only, dull black with a deep and broad transverse furrow; antennae 3-4 mm. in length at least three times as long as the head, segment 1 brown and is one and one half times as long as the head, slightly less than the length of 2 and 3 united; 2 and 3 black the former being one-eighth the length of 1 and the latter being somewhat compressed toward the apex; style black and one-fourth the length of the second antennal segment; arista black and one-third the length of the style; face bare, dull black, grey tomentose; cheeks black and bearing black hair; proboscis black and projecting as far forward as half the length of the first antennal segment; palpi filiform, very hairy and the basal segment is slightly longer and broader than the apical, both of which are black.

Thorax half the length of the abdomen, hardly more than twice as long as its greatest width and almost as deep as long; dull black covered with grey tomentum and hairs and ornamented with an obliquely set brown stripe on each side which join a dorsal transverse one of the same colour, thus forming an arch extending from the base of one wing to the other; there is also an oblique furrow on each side extending from the wing base for one-third the distance to the head; furnished with 2 strong and 3 weak prealar bristles; scutellum black-brown and devoid of marginal bristles; post-scutellum similarly coloured; pleurae black.

Abdomen about as broad as the thorax, somewhat flattened on the sides and slightly tapering; dull black, covered sparsely with white and black hairs; venter dull black; genitalia pale brown.

Legs elongate, posterior femora flattened on the sides, first anterior tarsal segments somewhat dilated, the anterior coxae bear a few bristles and tufts of hair; black; apices of anterior femora and apices of the first posterior tarsal segments orange-brown; anterior tibiae, two basal segments of anterior tarsi and bases of first intermediate tarsal segments yellow.

Wings tinged grey with a broad, dark grey, cross band extending from near the base to the apex of the median cell and another narrow one crossing at the tip of the wing; R4 straight except for a slight upward curve near the extremity; M1 and M2 slightly sinuous; M3 and M4 meet each other slightly before the margin; Cul coalesces with 1A, which is straight,

well before the wing border; cell M3 slightly longer and broader than the median. The halteres are black.

The female of this species is unknown to me.

Variations: The anterior tibiae grade in colour from orange to yellow.

There is a specimen in the material before me which differs slightly from the typical ones: The face is grey becoming black towards the cheeks which are black for a short distance and then grey; the wings are hyaline, except for a narrow dark grey band crossing the median cell; cell M3 is longer but hardly broader than the median.

The species has habits similar to those of *A. flavicornis* and is found under the same circumstances.

Habitat: Queensland, Eidsvold (1 ♂, December, 1922); Stradbroke Island (2 ♂, F. H. Roberts, October, 1926); Gordonvale (3 ♂, F. P. Dodd, February, 1919, and January, 1926).

Separated from all other *Agapophytus* by having the anterior tibiae wholly yellow and the remaining tibiae black.

AGAPOPHYTUS ALBOPUNCTATUS.

Agapophytus albopunctatus Roder, Berl. Ent. Zeitz., xxix., p. 139, pl. 4, figs. 1-3, 1885; *Id.*, Krober, Ent. Mitt., 1, p. 120 and p. 283, 1912.

Length: 12-14 mm. (including antennae).

Male: Head transverse twice as broad as long; occiput shining black; eyes separated on the vertex by the width of the ocellar tubercle, and with the anterior margins parallel for a short distance below this and from thence convex and diverging; ocellar tubercle, bare and shining black; ocelli dark brown; front shining black, bare and smooth; antennae 4 mm. long, three times as long as the head, black with the basal sixth of the first segment brown; segment 1 almost seven times as long as 2 which is one-sixth the length of 3; 3 is broader than the other segments toward the tip and is slightly shorter than 1; style about one-sixth the length of the second antennal segment; arista one-third the length of the style; face and cheeks black, grey tomentose and the latter bearing greyish hair; proboscis and palpi brown-black, the former projecting as far forward as one-third the length of the first antennal segment and the latter about two-thirds the length of the former and with both segments of about the same length, but the apical is somewhat stouter.

Thorax somewhat longer and deeper than broad, almost three times as long as the head; dull black with brown reflections dorso-anteriorly; furnished with black and greyish hairs and a few white scales, 4 pre-alar, 1 inter-alar, 2 post-alar and 4 pre-scutellar bristles; pleurae black, grey tomentose; scutellum and postscutellum dull black, the former provided with 2 bristles.

Abdomen black; segment 1 somewhat brown; 2 and 3 apically margined white; the whole black and grey haired; venter black; genitalia brown.

Legs orange, coxae, femora and basal four-fifths of the hind tibiae black.

Wings dark grey with two broad yellow cross bands, the first of which extends from the base to near the tips of the basal cells and the other from the apex of the median to half the length of R4; venation normal; cell M3 slightly narrower and longer than the median.

The halteres are pale brown.

The female is unknown to me.

Habitat: Victoria, Warburton (1 ♂, F. E. Wilson, January, 1924).

Krober described his specimen from Adelaide.

The species is readily distinguished by the colour of the legs and wings.

AGAPOPHYTUS RUFICAUDUS *sp. nov.*

Length: 10-12 mm. (including antennae).

Male: Head transverse, considerably broader than the thorax and at least twice as broad as long; occiput black with patches of grey in the middle and towards the sides, and with greyish hairs on the sides; eyes separated on the vertex by the width of the ocellar tubercle, the anterior margins straight and very slightly diverging until level with the antennae from whence they convexly diverge; ocellar tubercle very large, somewhat triangular, considerably raised and provided with rather long pubescence; ocelli brown; front black and bearing long whitish hair; antennal tubercle small and flattened, shining black, antennae 3 mm. long, at least twice as long as the head, black with the basal third of the first segment brown and with some brown reflections towards the apex of this same segment; segment 1 bears some black bristles at the apex only; as long as the head, seven times as long as 2 which is one-seventh the length of 3; 3 compressed at the apex and about the same length as 1; style two-segmented hardly as long as the second antennal segment and having its basal segment slightly shorter than, but about twice as broad as, its apical which is somewhat tholiform; arista one-fifth the length of the style; face evenly convex, black, bare; cheeks dull black provided with black and grey hair; proboscis and palpi black, the latter provided with long black hair with the apical segments somewhat spatulate.

Thorax slightly more than twice as long as the head, hardly twice as long as, and about as deep as broad; dull black, greyish tomentose and ornamented with a broad convex brown transverse band which arises and terminates at the bases of the wings; furnished with 2 pre-alar, 2 inter-alar and 1 post-alar bristles; pleurae black, grey tomentose; scutellum brown-black, furnished with a large dense marginal tuft of black bristles; post-scutellum black with silver-grey reflections.

Abdomen black, greyish anteriorly and laterally; segments 4-7 ferruginous; the whole covered with black and brown pubescence; genitalia brown; venter similarly coloured as the dorsum except that there is more black on that of segments 4-7.

Legs black, all the first basal tarsal segments dirty white; wings smoky with a broad pale yellow cross band extending from the apex of the median cell to one half the length of R₄; M₃ and M₄ similarly with Cu₁ and 1A coalesce well before the wing border, the latter vein being very slightly sinuous; cell M₃ is longer and broader than the median. The halteres are brown with yellow apices. The female differs from the male in having the eyes slightly more widely separated on the vertex, a broader front which is less hairy and a more elongate abdomen.

Variations: The density of the wing coloration may vary.

Holotype: Male, Samford Range, Queensland, January, 1923; and Allotype, female, Brisbane, February, 1925 (H. Hacker), in the Queensland Museum, No. 3498.

Paratypes (4 ♂, Brisbane, September, 1923, H. Hacker), in the Queensland Museum, No. 3499.

Habitat: As above.

The species is diverse from the more typical forms in having the transverse head, two-segmented style, spatulate palpi and the large dense tuft of bristles on the scutellum. It can readily be recognised by the colour of the abdomen, wings and legs.

AGAPOPHYTUS ATERRIMUS *sp. nov.*

Length: 10-14 mm. (including antennae).

Male: Head transverse (but not nearly so as in *ruficaudus*), twice as broad as long; occiput black; eyes separated on the vertex by the width of

the ocellar tubercle and with the anterior margins straight and parallel for one-third the length of the frons and from thence widely diverging; ocellar tubercle very large, raised considerably, somewhat triangular and provided with dense long black and whitish hair; ocelli black-brown; front shining black, bare; antennal tubercle small, very slightly projecting, shining black; antennae 3 mm. long, slightly more than twice as long as the head, black with the basal fourth of the first segment brown, the whole beheaded; segment 1 eight times as long as 2 which is one-sixth the length of 3; segment 3 somewhat broader towards the apex and at its broadest point slightly broader than the other segments; slightly compressed near the apex and slightly shorter than 1; style two-segmented, the basal being broader but considerably shorter than the apical which is tholiform; arista short and thick, being about one-fifth the length of the style; face and cheeks black, the former covered with long whitish and black hair, the latter becoming grey under the eyes and bearing whitish hair; proboscis and palpi black, black haired, the former projecting as far forward as two-thirds the length of the first antennal segment and the latter with the basal segment slightly longer than the apical.

Thorax slightly more than twice as long as head, one and one half times as long as and about as deep as broad; deep black with white scales, black haired and furnished with 4 pre-alar and 1 inter-alar bristles; pleurae black, grey tomentose; scutellum and postscutellum black, the former provided with 2 bristles.

Abdomen one and one half times as long as the thorax; black, segments 1-3 silvery pollinose, 1 with some brown reflections and 2 with a brown median patch on the posterior margin; the whole black and white haired; venter black; genitalia light brown.

Legs black, the apices of the fore tibiae dirty white.

Wings smoky with two broad yellow cross bands, the first of which extends from the base almost to the apices of the basal cells and the second from the apex of the median to half the length of vein R4; venation as in *ruficaudus* except that cell M3 is slightly narrower and longer than the median. The halteres are yellow.

The female differs from the male in having the eyes separated on the vertex by slightly more than the width of the ocellar tubercle, with the anterior margin slightly concave, the broader front, the more elongate abdomen which is devoid of silvery pollen but the second segment is apically margined white.

Holotype: Male, Brisbane, Queensland (October, 1916, H. Hacker) in the Queensland Museum, No. 3500. Allotype: Female, Sydney, New South Wales (January, 1924, I. M. Mackerras) and in his collection, together with a paratype male.

A further paratype female in the writer's collection, Brisbane, Queensland.

Habitat: Queensland, Brisbane (as above); New South Wales, Toronto (1 ♀, no date); Sydney (as above); Victoria, Mooroopna (1 ♂, December, 1923, F. E. Wilson).

AGAPOPHYTUS ALBOBASALIS sp. nov.

Length: 11-13 mm. (including antennae).

Male: Head distinctly broader than long; occiput shining black, somewhat greyish towards the eye margins; eyes separated on the vertex by the width of the ocellar tubercle, converging slightly below this and then diverging with the anterior margins slightly concave; ocellar tubercle bare and shining black; ocelli brown; front bare and shining black; antennal tubercle bilobate bare and shining black; antennae 3-4 mm. long, three

times as long as the head, black with the basal half of the first segment brown, all segments haired but devoid of bristles; segment 1 slightly more than six times as long as 2 and almost as long as 2 and 3 united; 2 one-sixth the length of 3 which is somewhat compressed towards the apex and very little broader than the other segments; style broadly conical and one-third the length of the second antennal segment; arista stout and slightly shorter than the style; face slightly convex on the upper half, sparsely pubescent and shining black; cheeks dull black, becoming grey under the eyes and bearing greyish hair; proboscis brown-black, black haired and projecting as far forward as two-thirds the length of the first antennal segment; palpi somewhat sharp pointed, black and having the basal segment rather stouter but of about the same length as the apical, black haired.

Thorax two and one-third times as long as the head, about two-thirds as long as its greatest width and slightly deeper than broad; brown-black with brownish patches on the anterior margin and along the sides; ornamented with faint indications of two brown parallel dorsal stripes extending from the anterior margin for one-fourth the length of the dorsal surface; furnished with 4 pre-alar 2 inter-alar, 2 post-alar and 2 pre-alar bristles, all of which are black and fairly stoutly developed; the whole thorax is furnished rather densely with black pubescence; pleurae black, grey tomentose; scutellum brown-black and armed with two bristles; post-scutellum black-brown.

Abdomen twice as long as and about as broad as the thorax; brown-black with segment 1 wholly greyish white and 2 and 3 apically margined white; covered with black and some greyish pubescence; venter similar; genitalia brown.

Legs black; the whole of the first anterior tarsal segments, except for the tips are cream coloured; the basal two-thirds of the first tarsal segments of the intermediate and posterior legs, yellowish white.

Wings dark smoky with two broad yellow cross bands, the first of which crosses at the base and extends for half the length of the basal cells and the second crosses at the apex of the median cell and extends slightly beyond the fork of R4 and R5; venation as in *ruficaudus*. The halteres are yellowish, slightly black at the base.

The female differs from the male in having the anterior margin of the eyes straight and diverging for the whole of its length and in having the front slightly concave. The genital spines are black.

Variations: Two male specimens from New South Wales differ from the Queensland forms in having rather more brown and more distinct stripes on the thorax and fainter wing bands.

Holotype male and Allotype female, Chinchilla, Queensland (A. P. Dodd, November, 1927) both in the Queensland Museum, No. 3501, together with 4 female paratypes, No. 3502. A further 2 male paratypes in A. J. Nicholson's collection at Sydney and a pair in the author's collection, Brisbane.

Habitat: Queensland, Chinchilla (1 ♂, 1 ♀, A. P. Dodd); Brisbane (2 ♀, November, 1911, and April, 1919); National Park (1 ♀, December, 1919); Stradbroke Island (1 ♀, December, 1912); all taken by H. Hacker, Westwood (1 ♂, November, 1927, A. P. Dodd); New South Wales, Mittagong (2 ♂, January, 1924, A. J. Nicholson); South Australia, Murray River (1 ♀, F. R. Zietz).

The species is readily recognised by the colour of the legs and wings and by the white basal abdominal segment. It has been taken visiting Wilga flowers.

AGAPOPHYTUS SQUAMOSUS *sp. nov.*

Length: 11-13 mm. (including antennae).

Male: Head transverse, two and one-half times as broad as long; occiput black, brown and black haired; eyes separated on the vertex by the width of the ocellar tubercle, the anterior margins parallel for a short distance below this and from thence convexly diverging; ocellar tubercle black; ocelli almost black; front shining black and bare; antennal tubercle, small, very slightly raised, black but somewhat brownish apically; antennae 3 mm. long, slightly more than twice as long as the head, black with the basal half of segment 1 light brown which gradually deepens to dark brown towards the apex, where it is black and this segment is eight times as long as 2 which is hollowed apically; 3 broader towards the apex and at this part is broader than the other segments, compressed apically and slightly shorter than 1; style half the length of the second antennal segment; arista one-fourth the length of the style; face and cheeks black, the former tomentose and the latter bearing greyish hair; proboscis black-brown and projecting as far forward as half the length of the first antennal segment; palpi black, half the length of the proboscis and densely long black haired and with the apical segment broader but of the same length as the basal.

Thorax almost twice as long as the head, one and one half times as long as and about as deep as broad; black, covered with numerous dirty white scales and black hairs; furnished with 4 pre-alar, 1 inter-alar, 1 post-alar and 4 pre-scutellar bristles, all of which are black; pleurae, scutellum and postscutellum black, the former grey tomentose and the scutellum bearing 2 bristles.

Abdomen black; segment 1 brown; 1-3 apically margined white; the whole black and white haired; venter black; genitalia light brown.

Legs red; coxae black; apices of tarsi dark brown.

Wings as in *aterrimus*.

The female differs from the male in the usual sexual characters only. The genital spines are black.

Variations: The four apical tarsal segments may be wholly black. One male from Clermont, Queensland, has the femora wholly black and three others have black stripes on the femora and brownish on the tibiae.

Holotype male and Allotype female, Brisbane, December, 1924, *in copula*.

Collected by H. Hacker and in the Queensland Museum, No. 3503. Paratypes in the author's collection, Brisbane.

Habitat: Queensland, Brisbane, as above, Clermont (4 males, no date given); Chinchilla (1 pair, November, 1926, B. A. Smith, and 1 pair G. R. Bassingthwaighte, December, 1926).

Distinguished by the thoracic scales and the colour of the wings and legs.

AGAPOPHYTUS VARIPENNIS *sp. nov.*

Length: 12-14 mm. (including antennae).

Male: Head transverse, twice as broad as long and with the occiput shining black; eyes separated on the vertex by the width of the ocellar tubercle and with the anterior margins slightly converging below this for half the length and from thence more or less straightly diverging; ocelli black-brown; front shining black, sparsely short black haired and somewhat hollowed medianly; antennal tubercle small, very slightly projecting and shining black; antennae 3 mm. long, two and one half times as long as the head, black with the basal fifth of the first segment brown, the whole black haired, those on the two basal segments approaching to short

bristles; segment 1 almost ten times as long as 2 which is one-sixth the length of 3 and this segment is two-thirds the length of 1; style tholiform and one-third the length of the second segment of the antennae; arista fully half the length of the style; face concave, black and grey tomentose; cheeks grey and furnished with grey hair; proboscis black-brown and projecting as far forward as one-fourth the length of the first antennal segment; palpi black and the apical segment is conical and slightly shorter than the basal, the whole is covered densely with long black hair.

Thorax slightly more than twice as long as the head, hardly twice as long as but about as deep as broad; black-brown with grey at the anterior lateral angles and antero-medially; black haired and furnished with 3 pre-alar, 1 inter-alar, 1 post-alar and 2 pre-scutellar bristles; pleurae black, grey tomentose; scutellum brown-black with 2 bristles; postscutellum black.

Abdomen almost twice as long as and as broad as the thorax, somewhat flattened above; black, segment 1 mainly greyish, 2 and 3 with brown tomentum; venter black; genitalia light brown.

Legs bright brown; coxae and fore and middle tarsi, black; hind tibiae except for extreme apices and hind tarsi, dark brown.

Wings mottled dark grey medianly and apically; venation as in *aterrimus*. The halteres are brown, lighter apically and nearly black near the base.

The female differs from the male only in having the eyes separated on the vertex by twice the width of the ocellar tubercle.

Variations: There may be more brown and less grey in the thoracic coloration.

Holotype male and Allotype female, Toronto, New South Wales, taken in *copula*, and in Dr. I. M. Mackerras' collection, Sydney. A female paratype in Dr. A. J. Nicholson's collection at the Sydney University and in the writer's collection, Brisbane.

Habitat: New South Wales, Toronto (as above; no date given); Barrington Tops (1 ♀, January, 1925, S.U. Zool. Exp.); Mittagong (1 ♀, January, 1924, A. J. Nicholson).

Readily recognised by the wing pattern and leg coloration.

AGAPOPHYTUS IMITANS.

Phycus imitans White, Proc. Roy. Soc. Tasm., 1915.

Length: 9-10 mm. (including antennae).

Male: Head subhemispherical, somewhat flattened above, almost twice as broad as long; occiput black; eyes separated on the vertex by the width of the ocellar tubercle and from thence converging for half the distance to the antennae and then convexly diverging; ocellar tubercle bare and black; ocelli brown; front narrow, shining black, smooth and bare; antennal tubercle projecting slightly, bare, shining black with some white reflections on the sides; antennae brown with the base and tip of the apical segment black; segment 1 slightly less than half the length of the head and seven times as long as 2; 3 slightly longer than 1 and very slightly broader; style very short; arista twice the length of the style; face convex above, concave below, black with grey tomentum; cheeks grey and bearing grey hair; proboscis brown and projecting as far forward as two-thirds the length of the antennae; palpi brown and somewhat sharp pointed.

Thorax one and one half times as long as the head; black with a brown longitudinal median stripe and somewhat grey on the humeral calli; furnished with black pubescence and 4 pre-alar, 1 inter-alar, 1 post-alar and 4 pre-scutellar bristles; pleurae black, grey tomentose; scutellum velvet black and armed with 2 bristles; postscutellum grey-black.

Abdomen twice as long as and slightly narrower than the thorax; black; segments 2-3 apically margined white; venter black; genitalia brown.

Legs dark orange; coxae, apical half of fore and extreme apices of hind tibiae and basal half of first anterior tarsal segments black; remainder of anterior tarsi pale yellow; intermediate tarsi brown.

Wings hyaline with the tip and two broad irregular cross bands grey; these bands are confluent in parts and extend from the base to the apex of the median cell; venation normal. Halteres pale yellow. The female differs from the male in having the eyes separated on the vertex by slightly more than the width of the ocellar tubercle and the anterior margins practically straight and uniformly diverging; segments 7 and 8 of the abdomen are brown. The genital spines are red.

Habitat: Queensland, Tambourine Mount (2,000 ft.) (1 ♀, H. Hacker, November, 1925, and Allotype male, J. Mann, December, 1925).

White described the species from a female taken at Wedge Bay, Tasmania, by G. H. Hardy, January, 1914, and his type is in G. H. Hardy's collection, Brisbane.

The male Allotype described here is in the Queensland Museum, No. 3504.

The species is recognised by the colour of the legs.

AGAPOPHYTUS QUATIENS.

Phycus quatiens White, Proc. Roy. Soc. Tasm., 1915.

Length: 9-12 mm. (including antennae).

Male: Head subhemispherical hardly twice as broad as long; occiput black; eyes separated on the vertex by the width of the ocellar tubercle with the anterior margins straight and very slightly converging below this for a short distance and from thence somewhat concave and widely diverging; ocellar tubercle black; ocelli brown; front shining black, bare and smooth; antennal tubercle black, smooth and very slightly projecting; antennae black with the basal fifth of the first segment brown and this segment is seven times as long as 2; segment 3 is missing in the specimen before me but White states that it is half the length of and considerably broader than 1 and "somewhat inflated"; face and cheeks black, the latter with grey hair; proboscis black-brown and projecting as far forward as one-third the length of the first antennal segment; palpi black-brown and two-thirds the length of the proboscis, with the apical segment broader but about the same length as the basal.

Thorax one and one half times as long as broad, black with indications of three brown longitudinal stripes, and brown reflections dorso-centrally and greyish anteriorly and posteriorly; furnished with black pubescence and 3 pre-alar, 1 inter-alar, 4 short post-alar and 2 pre-scutellar bristles; pleurae, scutellum and postscutellum black, the former grey tomentose and the scutellum with 2 bristles.

Abdomen twice as long as the thorax and somewhat tapering; black with segments 1-2 apically margined brown and 3 apically margined white, 7 brown; venter black; genitalia brown.

Legs orange; coxae and apical tarsal segments black.

Wings hyaline with a broad irregular dark grey cross band extending from the middle of the basal cells to the apex of the median, there is also a dark grey patch at the fork of veins R4 and R5; venation normal; cell M3 is slightly longer and narrower than the median. The halteres are yellow.

The female differs from the male in having the eyes separated on the vertex by almost twice the width of the ocellar tubercle and in having the

anterior margins practically straight and diverging for the whole distance.

Habitat: Tasmania, Maria Island (1 ♂, G. H. Hardy, December, 1915); Launceston (1 ♀, G. H. Hardy, January, 1914). White described the type series from Bagdad Valley.

The species is recognised by the colour of the wings and legs.

Genus ACATOPYGIA.

Acatopygia Krober, Ent. Mitt., 1, p. 149, 1912.

Head broader than long and somewhat pyriform; occiput deeply concave with a median furrow, bristles and hairs present but not numerous; ocellar tubercle large, oval and raised; eyes bare, divided longitudinally by a deep furrow, separated in both sexes but very much more so in the female than in the male, facets uniform; antennal tubercle pronounced; antennae decumbent, shorter than the head and in relation to the anterior margin of the eye are set at about two-thirds its depth, composed of 3 segments, the third of which is broadly conical when viewed in profile and is provided with an apical two segmented style which bears an apical arista; face small, tomentose only; cheeks with long fine hair; proboscis stout and projecting forwards; palpi filiform and about two-thirds the length of the proboscis, composed of two segments, the basal one of which is short, being but one-fifth the length of the apical.

The thorax is hardly as wide as the head, fully twice as long as its greatest breadth, convex above and furnished with but few bristles; scutellum semicircular and bearing 2 marginal bristles; postscutellum convex and well hidden beneath the scutellum.

The abdomen is slightly more than twice as long as the thorax, tapering, flattened dorsally and ventrally, silvery pollinose in the males, hairy, but without bristles; genitalia large and conspicuous in the males; in the female the two apical segments are distended and the genital spines are weak.

The legs are rather elongate, especially the hind pair; the hind femora are somewhat flattened on the sides and they bear a row of bristles on the underside; all tibiae and tarsi are furnished with numerous bristles.

Wings banded; large and broad, in comparison with the size of the insect; vein R4 practically straight; M1 and M2 parallel; M3 and M4 coalesce well before the border and Cu1 coalesces with 1A slightly before the hind margin; cell M broader but not as long as M3; costa and hind margin ciliated.

Genotype: *Acatopygia pulchella* Krober.

Range: Peculiar to Australia.

Distribution: The typical species extends from New South Wales into Southern Queensland.

A monotypical genus easily recognised by the banded wings, large hypopygium, long hind legs, bristled and flattened femora and furrowed eyes.

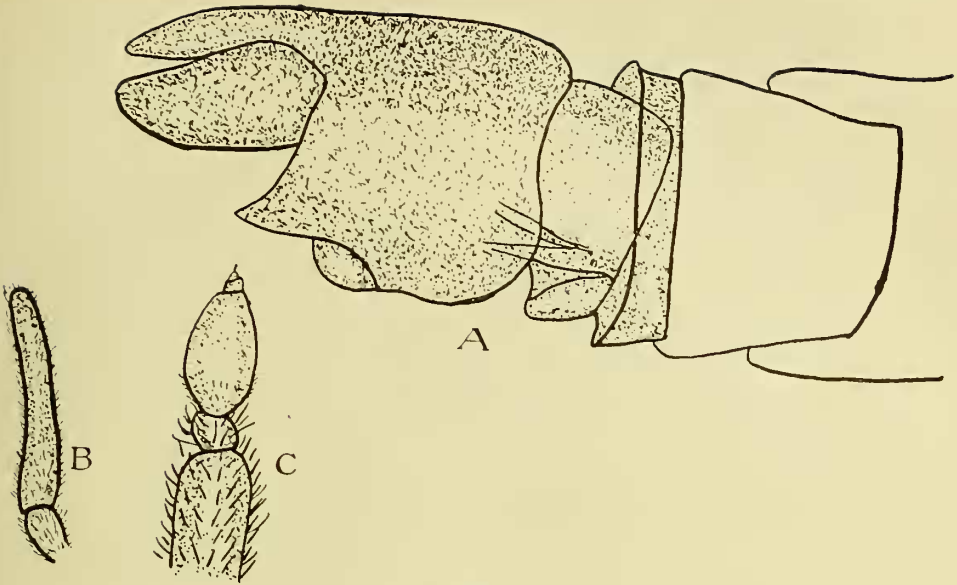


Fig. 5.

Acatopygia pulchella Krober.

- A. Extremity of abdomen showing large hypopygium.
 B. Palp.
 C. Antenna.

ACATOPYGIA PULCHELLA.

Acatopygia pulchella Krober, Ent. Mitt., 1, p. 149, 1912.

Length: 7-9 mm.

Male: Occiput brown and furnished with a few black bristles; eyes separated on the vertex by the width of the ocellar tubercle, converging slightly below this for half the length and from thence concavely diverging; front dark brown, with some yellowish hairs towards the antennae, but when viewed horizontally the whole is black-brown, covered with long black hairs; antennal tubercle shining black with a white transverse band which is visible from the dorsal aspect only; antennae rather broadly separated at the base with the apices of the first segments touching, the remaining segments widely divergent, brown with some white tomentum and segments 1 and 2 furnished with long black bristles and hairs; segment 1 cylindrical, about as long as 3 and three times as long as 2 which is short and globular; 3 broadly conical; the style has its first segment somewhat rectangular and very much broader and longer than its second which is small, tholiform and deeply set and is with difficulty discerned; face white tomentose; cheeks white with grey tomentum and bearing long fine silvery hairs; proboscis brown, projecting as far forwards as two-thirds the length of the first segment of the antennae; palpi brown and about two-thirds the length of the proboscis.

Thorax chocolate brown, ornamented with a somewhat rectangular obliquely placed lateral area of yellowish tomentum just in front of the transverse suture and with two rather broad yellowish parallel stripes which extend for fully two-thirds the length of the dorsal surface; pleurae black, grey tomentose; scutellum shining black, the bristles are long, black and weakly developed; postscutellum black.

Abdomen has segments 1-5 dull black, densely silvery pollinose and the remaining segments shining black; segment 2 has a rather broad snow white hind margin; 2-4 each have a small patch of grey on the sides; venter shining black; genitalia mostly black-brown.

Legs black; anterior coxae mostly brown; apices of fore femora, base of fore tibiae, whole of middle and hind tibiae (except for a few patches of black) and bases of all tarsal segments brown.

Wings tinged grey, ornamented with two broad and one narrow, irregular, dark brown cross bands, the first of which crosses the apices of the basal cells, the second the median cell and the third just prior to the wing tip; halteres pale brown with yellow apices.

The female differs from the male by having the eyes separated by fully twice the width of the ocellar tubercle and by the uniformly shining black abdomen with segment 1 grey pollinose and segments 2-4 with the apical margins narrowly snow white.

Variations: The stripe on the thorax may extend the whole length of the dorsal surface, in which case they coalesce towards the apical third.

Habitat: New South Wales, Ryde (2 ♂, September, 1925); National Park (7 ♂, 1 ♀, I. M. Mackerras, September, 1925); Como (1 ♀, G. H. Hardy, October, 1921); Sydney (1 ♂, October, 1925); Queensland, Brisbane (2 ♂, G. H. Hardy, November, 1925; 8 ♂, F. Roberts, August, 1927; 22 ♂, 1 ♀, J. Mann, August, 1925).

This species is readily determined by the banded wings, silvery pollinose abdomen of the males, in conjunction with the large hypopygium.

A sand-frequenting Therevid, generally found in numbers where it occurs. The males dance and hover in the air with the long hind legs hanging downwards, reminding one of certain HYMENOPTERA. The silvery pollinose abdomen glistening in the sun makes the insect very conspicuous. The females are found running about the ground or resting on grass or amongst the foliage of low growing shrubs; I have never observed them hovering in the air as do the males.

Genus LONCHORHYNCHUS.

Lonchorhynchus White, Proc. Roy. Soc. Tasm., 1915.

Head subhemispherical, distinctly or slightly broader than long, slightly broader than the thorax; occiput deeply concave, fringed with black hairs and bristles; eyes bare, large, facets uniform, separated in both sexes, but slightly more so in the female than in the male, anterior margins parallel for a short distance and then diverging; ocellar tubercle of moderate size, oval, slightly raised and bearing tufts of black hairs and bristles; three ocelli; front broad, flattened and sculptured; antennal tubercle rather prominent; antennae, in relation to the anterior margin of the eye, set at about two-thirds its depth, shorter than the head (in *segnis* less than half the length) separated at the base with the apices of the first segments touching and the remaining segments widely divergent; the first and second

segments furnished with numerous black bristles and hairs and the third haired only; segment 1 is always cylindrical; 2 somewhat globular and 3 broadly conical when viewed in profile; style two-segmented the relative lengths of which segments vary specifically; the arista is always present and may be longer than the style; face small; proboscis stout and projecting forwards and upwards towards the antennae; palpi two segmented.

The thorax is convex above, longer than broad and furnished with 2-4 pre-alar, 1-2 inter-alar, 2 post-alar and sometimes 4-6 pre-scutellar bristles; scutellum semicircular and furnished with from 2-6 weak and strong marginal bristles; postscutellum convex and always well hidden beneath the scutellum.

The abdomen is elongate-conical or straight sided; one and one-third to two and one half times as long as the thorax.

The legs: both the tibiae and the tarsi bear numerous bristles but the femora are devoid of such.

The wings may be longer or slightly shorter than the abdomen, hyaline and somewhat clouded; M3 and M4 similarly with Cu1 and 1A coalesce well or just before the wing border; the costa and hind margin ciliated.

The sexes are mostly similar, differing only in the usual sexual characters and the specimens of any species show but little variation.

Genotype: *Lonchorhynchus nitidifrons* Macquart.

Range: Restricted to Australia.

Distribution: One species, *actuosus*, is known from Tasmania only; *segnis* extends from Tasmania into New South Wales and *nitidifrons* from Tasmania to Queensland.

Lonchorhynchus is readily recognised by the comparatively large size and shape, and by the position and length of the antennae.

In the material before me I have 3 specimens representing 3 new species which can be placed in this genus, but until more are forthcoming the describing of same is left in abeyance.

Key to the Species of *Lonchorhynchus*.

1. Femora wholly black. 2.
Femora at most with a black stripe above; pleurae with a broad silver longitudinal stripe just above the coxae. *actuosus* White.
2. Front wholly black; thorax with faint indications of longitudinal stripes only; M3 and M4 coalesce well before the wing border.
. *segnis* White.
Front brown on the upper two-thirds; thorax with a broad velvet black dorsal stripe; M3 and M4 coalesce just before the margin.
. *nitidifrons* Macquart.

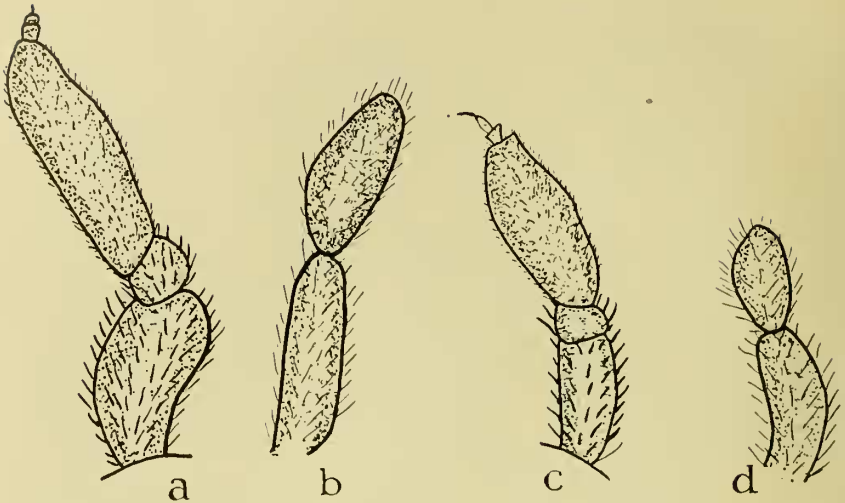


Fig. 6.

- a. antenna of *Lonchorhynchus actuosus* White.
 b. Palp of same.
 c. Antenna of *Lonchorhynchus nitidifrons* Macquart.
 d. Palp of same.

LONCHORHYNCHUS ACTUOSUS.

Lonchorhynchus actuosus White, Proc. Roy. Soc. Tasm., 1915.

Length: 10-13 mm.

Male: Head slightly broader than long; occiput grey; eyes separated on the vertex by the width of the ocellar tubercle, anterior margins parallel for one-third the length of the front and from thence widely diverging but straight; ocellar tubercle brown-black; front dull black, greyish at the eye margins and just below the vertex, ornamented with irregular fine punctures or granulations and furnished with a few black hairs; antennal tubercle dull black but with some grey laterally; antennae black-brown, very slightly separated at the base, segment 1 short and thick being but two-thirds the length of 3 and at its greatest width slightly more than one half as wide as long; 2 short, slightly more than one-fourth the length of 1; 3 rather longer than 1 and 2 united; the style is two-thirds the length of the second antennal segment and has its first segment somewhat rectangular and twice as long as its second; the arista is hardly as long as the apical segment of the style; face receding, grey tomentose; cheeks grey and furnished with long fine greyish hair; proboscis black-brown, brown haired and projecting as far forward as the apex of the first antennal segment; palpi two-thirds the length of the proboscis, the basal segment being slightly longer than the apical, brown and sparsely covered with long brown hair.

Thorax two-thirds as long as wide, slightly deeper than broad and slightly more than twice as long as the head; dull black ornamented with 5 irregular, interrupted, grey, longitudinal stripes; furnished with black

hairs and 4 pre-alar, 1-2 inter-alar, 2 post-alar and 4-6 pre-scutellar bristles, some of which may be but weakly developed; pleurae shining black with a broad silver longitudinal stripe just above the coxae; sparsely covered with greyish and brownish hairs; scutellum dull black dorsally and shining black laterally, with 2 strong and 2-4 weak black bristles; post-scutellum black-brown.

Abdomen two and one half times as long as the thorax; elongate-conical, flattened dorsally and ventrally; at its broadest point, about the same width as the thorax; shining black, segments 2-4 apically margined white which is interrupted medianly by a brown patch; furnished with black and greyish hairs; venter shining black; genitalia brown.

Legs dark brown; coxae covered with grey and black tomentum; femora with a black stripe above; tarsi black apically.

Wings slightly shorter than the abdomen, brownish tinged with indications of a dark brown band crossing the median cell; stigma dark brown, conspicuous; M3 and M4 coalesce well before the margin of the wing; 1A is somewhat concave and Cul meets same well before the border; the halteres are brown with yellow apices.

The female differs from the male in having a slightly broader frons and the brown of the legs brighter.

Variations: The brown of the legs may vary from bright to dark brown; the antennae may be black; the thorax may have grey on the anterior margin.

Habitat: Tasmania, Hobart (2 ♂, 1 ♀, December and January); Zeehan (1 ♂, February, 1924); Maria Island (1 ♂, December, 1924); all taken by G. H. Hardy.

Types: Co-type is in G. H. Hardy's collection, Brisbane.

This species is readily separated from the closely allied *nitidifrons* by having the white apical margin of the abdominal segments interrupted, and, by the presence of the silver pleural stripe.

LONCHORHYNCHUS SEGNIS.

Lonchorhynchus segnis White, Proc. Roy Soc. Tasm., 1915.

Length: 9-11 mm.

Male: Head distinctly broader than long; occiput black, dusted with greyish tomentum; eyes separated on the vertex by the width of the ocellar tubercle, anterior margins parallel for one-fourth the length of the front and from thence widely diverging and very slightly concave ocellar tubercle bearing tufts of black hairs and weak bristles; ocelli bright brown; front shining black, ornamented with irregular, roughly rugose sculpture and furnished sparsely with fine black and grey hair; antennal tubercle shining black with a longitudinal sulcus and furnished with greyish hairs; antennae black, slightly more than one half the length of the head, segment 1 half the length of 3; 2 half the length of 1; 3 longer than 1 and 2 united; the style is two-thirds the length of the second antennal segment and has its two segments of almost equal length but the first is considerably broader than the second; the arista is slightly longer than the style; face black, grey tomentose; cheeks grey and furnished densely with long fine white hair; proboscis black-brown, projecting as far forward as the apex of the second segment of the antennae; palpi black-brown, the basal segment one-fourth the length of the apical, the whole furnished with long greyish hair.

Thorax slightly longer than, and about as deep as broad, 3 times as long as the head; black with faint indications of 3 longitudinal stripes; furnished with short black hair and 2 pre-alar, 1 inter-alar and 2 post-alar bristles; pleurae black, grey tomentose and some bear tufts of black hair; scutellum dull black, somewhat brownish anteriorly and bearing 2 black bristles; postscutellum grey-black.

Abdomen as broad as and one and one-third times as long as the thorax, slightly more than twice as long as broad; parallel sided for three-fourths its length and from thence rounded to the apex; flattened above; dull black, with brownish reflections and covered with black and whitish hairs; segments 2-4 with the posterior lateral angles margined creamish; 6-7 brown laterally; venter of all segments with a great deal more brown, the posterior margins of 2 and 3 are white and the posterior lateral angles of 4 are white; genitalia brown.

Legs black; basal three-fourths of all tibiae and that of all the first tarsal segments bright brown.

Wings slightly longer than the abdomen and three times as long as broad; somewhat clouded; stigma distinct; M3 and M4 meet well before the border and Cu1 joins 1A, which is straight, well before the margin; cell M3 narrower but slightly longer than the median. The halteres are dark brown with yellowish apices.

The female differs from the male by having the eyes separated on the vertex by twice the width of the ocellar tubercle, a dull black front margined white laterally, the thorax with the anterior margin and the apical half laterally margined grey, segment 1 of the abdomen with the posterior lateral angles grey and by having the bright brown of the legs replaced by dark brown. The genital spines are reddish-brown.

Variations: Segments 2-4 of the abdomen may be wholly margined white or greyish and the general color of the abdomen may vary from black to black-brown.

Habitat: Tasmania, Hobart (G. H. Hardy, 3 ♂, 1 ♀, January, 1924 and 1916, and December, 1915; and C. E. Cole, 1 ♂ and 1 ♀, October, 1916); Mount Wellington (G. H. Hardy, 2 ♂, January, 1916); New South Wales, Blackheath (I. M. Mackerras, 1 ♂, February, 1926; G. H. Hardy, 1 ♀, November, 1919).

LONCHORHYNCHUS NITIDIFRONS.

Anabarrhynchus nitidifrons Macquart, Dipt. Exot., Suppl. 4, p. 101, 1850.

Lonchorhynchus nitidifrons White, Proc. Roy. Soc. Tasm., 1915.

Length: 9-11 mm.

Male: Head broader than long, slightly broader than the thorax; occiput black; eyes separated on the vertex by the width of the ocellar tubercle, anterior margins parallel for half the length of the front and then widely diverging and slightly concave; ocellar tubercle brown and bearing tufts of stiff brown hairs; ocelli bright brown; front brown on the upper two-thirds, shining black on the lower with an indistinct, transverse, median, grey stripe ornamented with two transverse carinae and faint indications of five longitudinal striae or reticulation; antennal tubercle shining black with whitish reflections towards the sides; antennae black, segment 1 slightly more than two-thirds the length of 3; 2 short, being but one-third the length of 1; 3 about as long as 1 and 2 united; the style is about two-thirds the length of the second antennal segment and has its first segment somewhat rectangular, about as broad as long, and its second, conical and slightly longer but narrower than the first; the arista is hardly as long as the apical segment of the style; face grey tomentose; cheeks grey and densely furnished with long fine grey hair; proboscis black and projecting as far forward as the middle of the third antennal segment; palpi with the basal segment brown, considerably stouter and about two-thirds the length of the apical which is black, both segments are sparsely covered with long brown hair.

Thorax hardly twice as long as, and about as deep as broad; three times as long as the head; brown, ornamented with a broad, velvet, black, dorsal longitudinal stripe; furnished with long black hairs and 4 pre-alar,

1 inter-alar and 2 post-alar bristles; pleurae black, covered with grey tomentum and bearing tufts of brownish hairs; scutellum velvet black, covered with four black bristles and fringed with long black pubescence; postscutellum brown-black.

Abdomen two and one half times as long as and slightly narrower than the thorax, elongate-conical; shining black; segments 1-4 with a dorsal brown reflection; 2-4 with the apical margin broadly silver-grey; black, brown and white haired; venter similarly coloured and clothed; genitalia brown.

Legs: Femora black; tibiae and tarsi dark brown with black reflections; the basal two-thirds of the first tarsal segments somewhat lighter especially the posterior ones which are almost bright brown.

Wings hyaline with indications of a grey diagonal cross band; stigma not pronounced; M3 and M4 coalesce just before the margin; 1A is somewhat concave and Cu1 meets same well before the border; cell M3 narrower but longer than the median cell; costa and hind margin finely ciliated. The halteres are dark brown.

The female differs from the male as follows: Eyes separated on the vertex by as much again as the width of the ocellar tubercle, diverging for the whole length with the anterior margins straight; fringe of occipital bristles rather stronger; ocelli black; front broad and uniformly black; third antennal segment brown; first abdominal segment apically margined white; wings clouded grey; tibiae more black than dark brown; genital spines reddish.

Variations: The tibiae and tarsi vary in colour from dark brown to black.

Habitat: Tasmania, Wedge Bay (1 ♀, G. H. Hardy, January, 1914); Hobart (1 ♂, G. H. Hardy, January, 1924); New South Wales, Biniguy (1 ♀, J. Mann, December, 1923); Queensland, Brisbane (1 ♀, G. H. Hardy, October, 1927; 1 ♀, H. Hacker, October, 1912; 1 ♀, J. Mann, December, 1925).

Genus PHYCUS.

Phycus Walker, Ins. Saund., Dipt., pt. 1, p. 2, 1850.

This genus has not been recognised amongst the Australian material to date. White's interpretation of same has been referred to *Agapophytus* (vide synonymy notes under that genus).

Genotype: *Xylophagus canescens* Walker; by original designation.

PHYCUS DIOCTRIAEFORMIS.

Phycus dioctriaeformis Schiner, Reise Novara Dipt., p. 151, 1868; *Id.*, Krober. Ent. Mitt., 1, p. 122, 1912.

Described from Sydney and Botany Bay, New South Wales.

Has not been recognised.

PHYCUS PALLIDICORNIS.

Phycus pallidicornis Krober, Ent. Mitt., 1, p. 124, 1912.

Male described from New South Wales.

Has not been recognised.

Addendum.

I wish to call attention to and correct the following errors in the first part of this series (Aust. Zool., Vol. v., pt. 2, May, 1928):

p. 166, line 31—for *kinbergia*, read *kinbergi*.

p. 193, lines 15, 16 and 17, "This species _____ from *ruficornis*"

should be transposed to page 192 and follow on after line 32 at the end of the description of *Anabarrhynchus rufiventris*.

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